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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,948	06/23/2000	Simon Furnidge	367.38669X00	8956

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EXAMINER

TRAN, PABLO N

ART UNIT PAPER NUMBER

2684

DATE MAILED: 02/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,948

Applicant(s)

FURMIDGE, SIMON

Examiner

Pablo N Tran

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2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-5, 3, 15
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kimura* (5,552,734).

As per claim 1, *Kimura* disclose a transmitter for a portable radio device comprising a modulator having a first port for inputting a base band signal and a second port for inputting a local oscillator signal; means for rectifying the input local oscillator signal to provide a conductance waveform at a multiple of the local oscillator signal; means for mixing the baseband signal with the conductance waveform at said multiple of the local oscillator signal frequency for up-converting the baseband signal to a radio frequency modulated carrier; and means for controlling the gain of the modulator thereby to control the output level of the modulator (see fig. 29-30, col. 18/ln. 12-col. 19/ln. 59).

As per claim 2, *Kimura* disclose a local oscillator signal drives the switching means at a multiple of its frequency (abstract).

As per claim 3, *Kimura* disclose means for controlling the gain of the modulator comprises current control means (col. 18/ln. 12-col. 19/ln. 59).

As per claim 4, *Kimura* disclose the modular comprises two cross-coupled pairs of switching element wherein a signal input modulates the switching element at a multiple of the local oscillator frequency (col. 18/ln. 12-col. 19/ln. 59).

As per claim 6, *Kimura* disclose a sub-harmonic mixer comprising a first port for inputting a baseband signal to the switching means to be up-converted and a second port for inputting a local oscillator signal to drive the switching means at an even multiple of the local oscillator for up-converting the baseband signal to transmission frequency (see fig. 29-30, col. 18/ln. 12-col. 19/ln. 59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Kimura* (5,552,734) in view of *Hickman* (LTPs and active double balanced mixers, vol. 99, no. 1683, pg 126-128).

As per claim 5, *Kimura* disclosed the two cross-coupled pairs of switching elements comprises two cross connected pairs of bipolar transistors but do not specifically disclosed long tail pairs of bipolar transistors. *Hickman* disclosed such long

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tail pairs of bipolar transistors. Therefore, it would have been obvious to one of ordinary skill in the art to replace long tail pairs of bipolar transistors, as discussed in *Hickman*, to the pairs of bipolar transistors of *Kimura* to minimized out-of-band emissions in a subsequent mixing with a carrier signal to generate a frequency modulated signal.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stuebing et al. (6,018,270), Groe (6,094,571), Groe (6,205,325), Kimura (5,252,866), Kimura (6,111,463), Nash et al. (6,397,044), Reum (5,081,670), Hilbert (5,983,082), Long (6,026,286), Wang (6,404,263) disclose RF mixer apparatus.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (703)308-7941. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Hunter, can be reached at (703)308-6732.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

February 08, 2003

PABLO N. TRAN
PATENT EXAMINER

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